

CHAPTER 2 – ALTERNATIVES

This chapter describes the range of alternatives, including all "reasonable alternatives" under consideration and those "other alternatives" which were eliminated from detailed study (23 CFR 771.123(c)). In accordance with the Federal Highway Administration's (FHWA) Technical Advisory T 6640.8a, the No-action, Transportation System Management (TSM), Transit, and build alternatives were considered.

23 CFR 771.123(c)

The draft EIS shall evaluate all reasonable alternatives to the action and discuss the reasons why other alternatives, which may have been considered, were eliminated from detailed study.

2.1 DEVELOPMENT OF "REASONABLE" AND "OTHER" ALTERNATIVES

A wide range of alternatives were developed and evaluated as part of this study. The initial list of alternatives was not constrained by mode, ability to meet the purpose and need, potential environmental impacts, or cost. The intent was to begin with a broad listing of specific and independent actions that could be performed. After listing individual actions, combinations of actions were also considered. Table 2-1 describes the basic characteristics of each alternative. Each alternative assumes that planned improvements to other area transportation facilities and the transit system as included in approved regional and local plans would be implemented.

Table 2-1. Initial Range of Alternatives.

Alternative	Description
No-action	The No-action Alternative assumes that short-term minor restoration (safety and maintenance) activities that maintain continued operation of the existing roadway facility would be implemented. The basic characteristic of the No-action Alternative is one travel lane in each direction on Syracuse Road.
TSM	The TSM Alternative includes activities that improve traffic flow and provide limited capacity improvement without building new travel lanes. TSM activities include: intersection improvements (such as turn lanes, signal coordination, and optimization), access management to reduce conflicts, and Transportation Demand Management (TDM) activities to reduce demand, such as employer based efforts (ride-sharing, transit promotion, and staggered or flexible works hours), and community efforts (encouraging walking and biking, and telecommuting).
Transit	The Transit Alternative assumes that public transit system improvements would be implemented. Examination of this alternative included a review of currently proposed transit improvements from the Wasatch Front Regional Council (WFRC) Long Range Transportation Plan (LRTP). The range of transit improvements investigated included both bus and rail improvements.
Combined Alternatives (all combined alternatives include TSM, TDM, and Transit Improvements)	
On-corridor	Three-Lane Includes the improvements along Syracuse Road between 1000 West and 2000 West to create a consistent three-lane cross-section (one travel lane in each direction and a two-way left-turn lane) with shoulders, curb and gutter, parkstrips, and sidewalks.
	Five-Lane Consistent with local and regional transportation master plans, the Five-Lane Alternative includes improvements along Syracuse Road between 1000 West and 2000 West to create a consistent five-lane cross-section (two travel lanes in each direction and a two-way left-turn lane) with shoulders, curb and gutter, parkstrips, and sidewalks.
	Seven-Lane Includes improvements along Syracuse Road between 1000 West and 2000 West to create a consistent seven-lane cross-section (three travel lanes in each direction and a two-way left-turn lane) with shoulders, curb and gutter, parkstrips, and sidewalks.
Improving Adjacent Parallel Roads	Syracuse Road remains two-lanes, and corridors to the north and south [West Point Road (300 North) and Gordon Avenue (2700 South)] are improved to five-lane roadways.

2.2 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Screening of alternatives was performed in two phases. The level of analysis of alternatives in each phase of screening increased as the number of remaining alternatives decreased (as depicted in Figure 2-1).

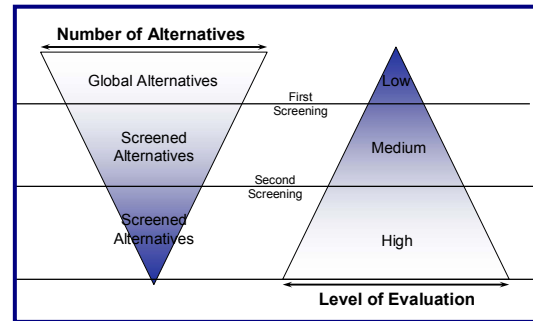


Figure 2-1. Number of Alternatives vs. Level of Evaluation.

2.2.1 First Screening

The first alternatives screening process compared estimated year 2030 travel demand volume of 30,000 vpd along Syracuse Road (how many vehicles want to use the roadway) to capacity or level of service (LOS) (how many vehicles can use the roadway). Alternatives were eliminated from further study when it became apparent that they did not meet the 2030 travel demand or when they provided excess capacity well beyond year 2030 travel demand. Table 2-2 shows the LOS D traffic capacity for each alternative, along with anticipated year 2030 traffic volumes for Syracuse Road. Alternatives expected to operate at LOS E or LOS F are shaded; alternatives advanced to the second screening are bolded.

Table 2-2. Comparison Between Traffic Capacity for LOS D and Year 2030 Traffic Volumes.

Alternative	LOS D Traffic Capacity (vpd)	Year 2030 Traffic Volumes (vpd)
No-action	11,500	20,000
TSM Alternative	12,000	21,000
Transit	12,000	21,000
On-Corridor Three-Lane	13,500	25,000
On-Corridor Five-Lane	28,975 (for 90-ft cross-section) 30,500 (for 110-ft cross-section)	30,000
On-Corridor Seven-Lane	46,000	30,000
Improving Adjacent Parallel Roadways to Five-Lanes	12,000	21,000

Notes: Year 2030 Traffic Volumes differ for each alternative based on the limiting traffic capacity of Syracuse Road for each alternative. Assuming implementation of planned improvements to all other area roadway facilities and transit are implemented, the 30,000 vpd 2030 travel demand for Syracuse Road can be accommodated by a five-lane roadway.

Alternatives eliminated as part of the first screening process include the TSM, Transit, Three-Lane Build Alternative, and Seven-Lane Build Alternative. Each of these is described in the following paragraphs, along with a brief discussion regarding the reasons for their elimination as viable alternatives. The TSM and Transit Alternatives are being eliminated as stand-alone alternatives, but their elements (including signal coordination and local transit bus service) are incorporated into the build alternatives.

TSM

TSM improvements, such as improved signal timing, signal coordination, and intersection widening, are roadway efficiency improving measures that can be controlled and implemented, to a degree, by the agencies with jurisdiction over the roadway (for Syracuse Road, the Utah Department of Transportation (UDOT) is the jurisdictional agency). In performing the detailed corridor traffic modeling and capacity analyses, it was assumed that these types of TSM improvements would be implemented as separate projects in conjunction with the No-action Alternative.

In conjunction with TSM, the success of Transportation Demand Management (TDM) programs has typically been tied to promotion and support by major employers. The Syracuse Road project area does not contain large employers. Additional commercial development is anticipated within the project corridor. This development is expected to be primarily retail businesses which would not have sufficient numbers of employees for TDM efforts to make a substantial reduction on traffic demand. Some larger concentrations of employment exist to the east of the project area; however, no large employer who would directly affect Syracuse Road is expected. Research has shown that area-wide TDM programs can expect to result in a four to eight percent reduction in travel demand.

Though beneficial, TSM and TDM improvements alone would not provide sufficient capacity to meet the projected future travel demand along the corridor as described in Chapter 1 and would result in an operating condition of LOS F. Analyses showed that implementing TSM and TDM improvements alone without the proposed roadway improvements would only increase the roadway capacity by about 500 vehicles per day (vpd) where an increase in capacity of 18,000 vpd is needed.

Transit

Currently there is hourly bus service by route No. 626 on this segment of Syracuse Road. This alternative would make improvements to the existing transit system in the study area, such as adding bus turnouts and increasing bus frequency. The Utah Transit Authority's (UTA) Long Range Transit Plan does not recommend any additional transit facilities to serve this corridor other than a high frequency bus route on the 3000 West/2700 South corridor. Other modes of transit, such as commuter rail, light-rail, enhanced bus service, or Bus Rapid Transit (BRT), would not be prudent for Syracuse Road and are not compatible with UTA's Long Range Transit Plan and the WFRC LRTP.

Improved transit service would result in increased bus ridership, but is not expected to provide a noticeable reduction in vehicles along Syracuse Road. Any reduction in vehicles by the increased transit ridership would be replaced by other vehicles wanting to use Syracuse Road. An increase in transit ridership of ten percent would still result in a 2030 traffic volume of about 21,000 vpd which would be beyond the capacity of a two-lane Syracuse Road and would result in LOS F operating conditions.

Three-Lane Build Alternative

This alternative assumes that the study area is enhanced with TSM and Transit improvements, and Syracuse Road is improved to a three-lane roadway (one travel lane in each direction and a

two-way left-turn lane). As an improved three-lane roadway, Syracuse Road would have a capacity of 13,500 vpd. The projected 2030 traffic volume under this scenario is 25,000 vpd. With the three-lane improvements, enhanced transit, and TSM improvements, the Syracuse Road 2030 travel demand would be beyond the capacity of a three-lane road, resulting in LOS F operating conditions.

Seven-Lane Build Alternative

This alternative assumes that the study area is enhanced with TSM and Transit improvements, and Syracuse Road is improved to a seven-lane roadway (three travel lanes in each direction and a two-way left-turn lane). As an improved seven-lane roadway, Syracuse Road would have a capacity of 46,000 vpd, while the projected 2030 traffic volume is the same as the travel demand of 30,000 vpd, which can be accommodated by a five-lane roadway. With the seven-lane improvements, enhanced transit, and TSM improvements, the Syracuse Road 2030 travel demand would be well within the capacity of a seven-lane road, resulting in an operating condition of LOS A or B. The capacity of the seven-lane Syracuse Road far exceeds the projected 2030 travel demand; a seven-lane road is not necessary and is therefore not prudent, given the number of environmental impacts associated with a wider cross-section.

Improving Adjacent Parallel Roadways

This alternative assumes that the study area is enhanced with TSM and Transit improvements and that Syracuse Road remains a two-lane roadway. This alternative includes improving adjacent parallel corridors [West Point Road (300 North) and Gordon Avenue (2700 South)], which are planned as three-lane facilities in 2030 to five-lane facilities. West Point Road is two miles north of Syracuse Road; Gordon Avenue is one mile south (see Figure 1-1). Neither of these roadways connects directly to I-15.

As a two-lane roadway, Syracuse Road would be expected to have a capacity of 12,000 vpd for LOS D operations. The projected 2030 traffic volume on Syracuse Road under this scenario would be 21,000 vpd. Because the traffic volume would be higher than capacity, LOS F traffic operations would result. The improved parallel facilities would not be expected to draw a sizeable volume of traffic from Syracuse Road. They are too far out of direction and would not provide access to I-15 as Syracuse Road does. Drivers would be unlikely to travel in circuitous pathways to reach their destinations. Syracuse Road would continue to be the preferred facility in the Syracuse area regardless of improvements to parallel roadways.

2.2.2 Second Screening

The second screening process consisted of three parts: evaluating compatibility of the alternatives with purpose and need, evaluating preliminary environmental impacts, and evaluating the potential for impacts to Section 4(f) properties (parks and historic buildings). All alternatives identified for consideration beyond the first screening were evaluated under all three parts.

Alternatives selected for additional study beyond the first level of screening include the No-action Alternative and the Five-Lane Build Alternative. The nine five-lane alternatives (Alternatives A - I) developed are shown in Figures 2-2 through 2-5 and described in Table 2-3.

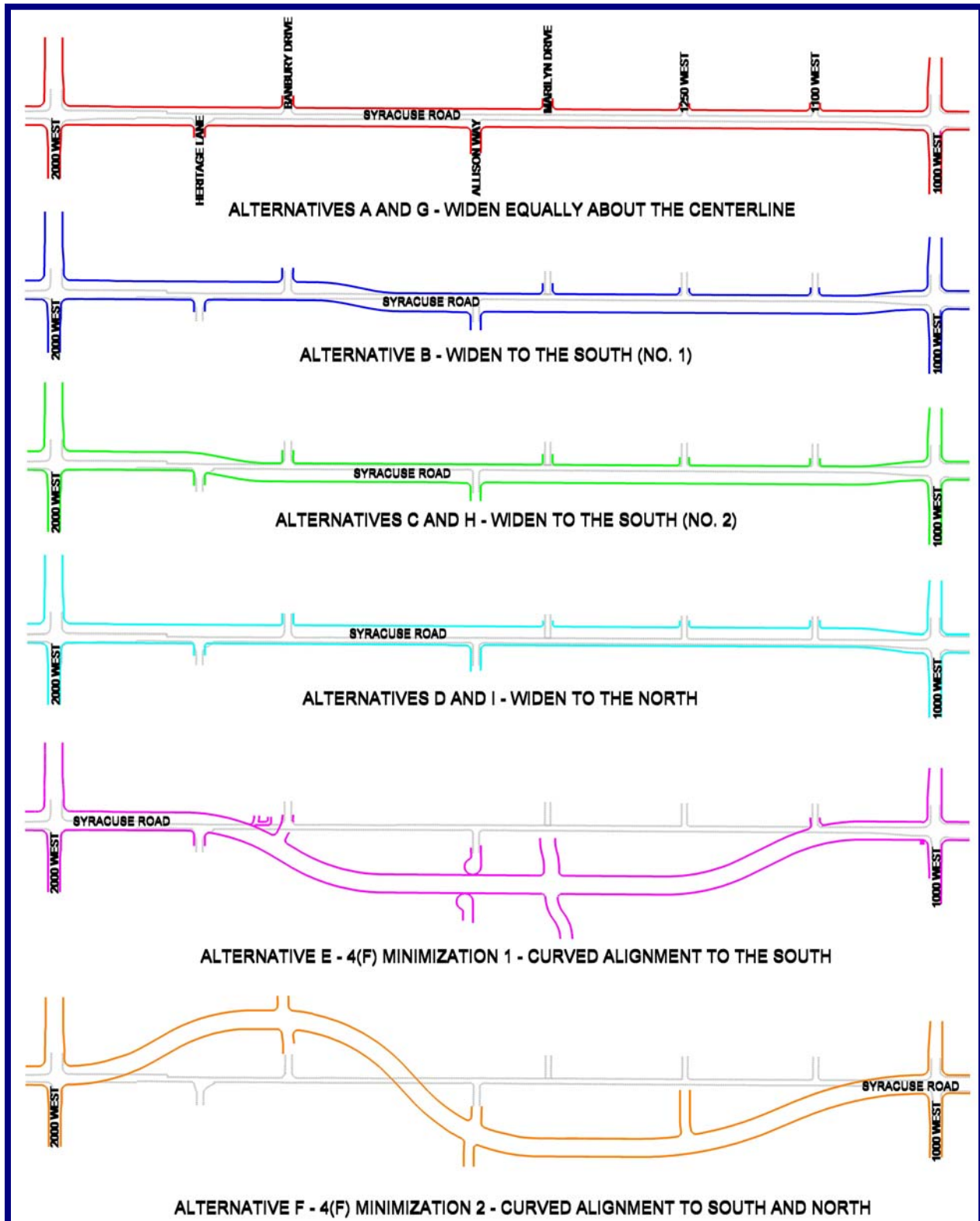


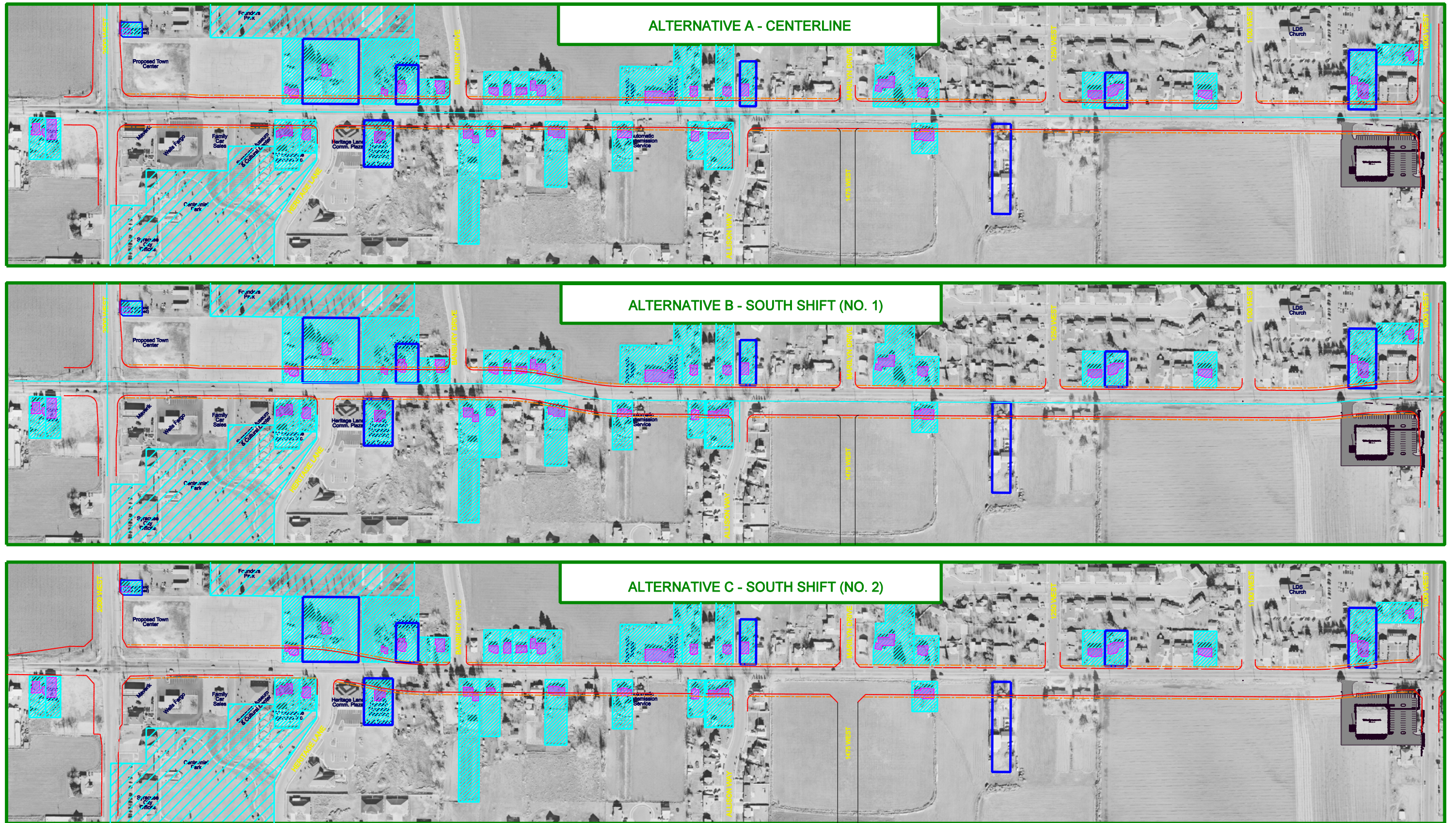
Figure 2-2. Five-Lane Build Alternatives.

Table 2-3. Summary of Initial Five-Lane Build Alternatives.

Alternative	Cross-Section Width	Description
Alternative A – Widen Equally About the Centerline	110-ft	<ul style="list-style-type: none"> Widens roadway equally to both the north and south
Alternative B – Widen to the South (No. 1)	110-ft	<ul style="list-style-type: none"> Widens both north and south at 1000 West intersection Widens to the south between 1050 W and 1650 W Widens to the north between 1650 W and 2000 W
Alternative C – Widen to the South (No. 2)	110-ft	<ul style="list-style-type: none"> Widens both north and south at 1000 West intersection Widens to the south between 1050 W and 1750 W Widens to the north between 1750 W and 2000 W
Alternative D – Widen to the North	110-ft	<ul style="list-style-type: none"> Widens both north and south at 1000 West intersection Widens to the north between 1050 W and 2000 W
Alternative E – Section 4(f) Minimization Alternative 1 - Curved Alignment to the South	110-ft	<ul style="list-style-type: none"> Widens both north and south at 1000 West intersection Shifts off-corridor (350 feet to south) between 1050 W and 1750 W Widens to the north between 1750 W and 2000 W
Alternative F – Section 4(f) Minimization Alternative 2 - Curved Alignment to South and North	110-ft	<ul style="list-style-type: none"> Widens both north and south at 1000 West intersection Shifts off-corridor (400 feet to south) between 1050 W and 1600 W Shifts off-corridor (400 feet to north) between 1600 W and 1975 W Widens to the north between 1975 W and 2000 W
Alternative G – Widen Equally About the Centerline	90-ft	<ul style="list-style-type: none"> Widens roadway equally to both the north and south
Alternative H – Widen to the South	90-ft	<ul style="list-style-type: none"> Widens both north and south at 1000 West intersection Widens to the south between 1050 W and 1750 W Widens to the north between 1750 W and 2000 W
Alternative I – Widen to the North	90-ft	<ul style="list-style-type: none"> Widens both north and south at 1000 West intersection Widens to the north between 1050 W and 2000 W

Alternatives A through F provide improvements to Syracuse Road between 1000 West and 2000 West, including:

- Widening of the corridor to a 110-ft, five-lane cross-section (four 12-ft travel lanes with a 14-ft two-way left-turn lane) with 12-ft shoulders that include a 5-ft bicycle lane, curb and gutter, 3.5-ft parkstrips, and 6-ft sidewalks between 1000 West and 2000 West, a distance of one mile.
- Allowing bicycle usage along the entire corridor by providing 5-ft wide Class II bicycle lanes (provides a striped and signed lane on each side of a roadway for one-way bicycle travel).
- Widening and improving all signalized intersections along the corridor to provide dedicated right and/or left-turn lanes and upgraded traffic signals (TSM strategies). Raised medians would also be implemented at the signalized intersections to protect left-turn movements
- Accommodating bus service along the corridor by providing 12-ft shoulders that can be used for bus loading and unloading.
- Making storm drain system improvements along the corridor.



LEGEND:

- RIGHT-OF-WAY LINE
- LANDSCAPE/UTILITY AREA OR EASEMENT
- SECTION 4(f) PROPERTY BOUNDARY
- SECTION 4(f) HISTORIC STRUCTURE
- LOCALLY IMPORTANT HISTORIC STRUCTURE

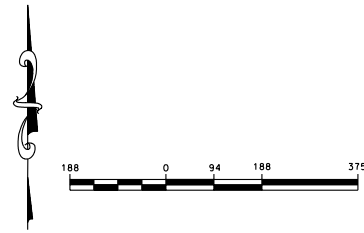
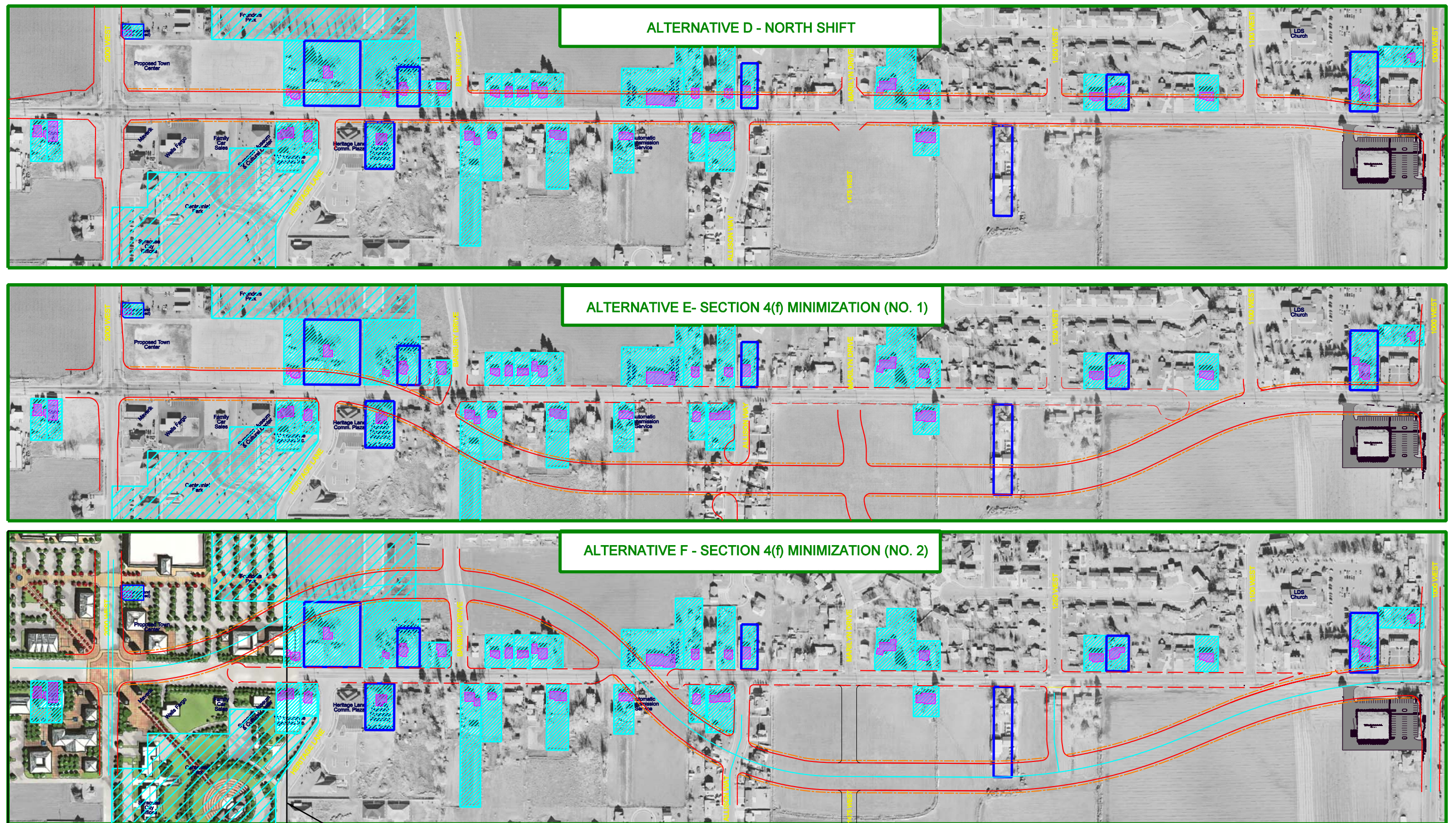







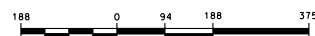
FIGURE 2-3
FIVE-LANE
BUILD ALTERNATIVES A, B, C



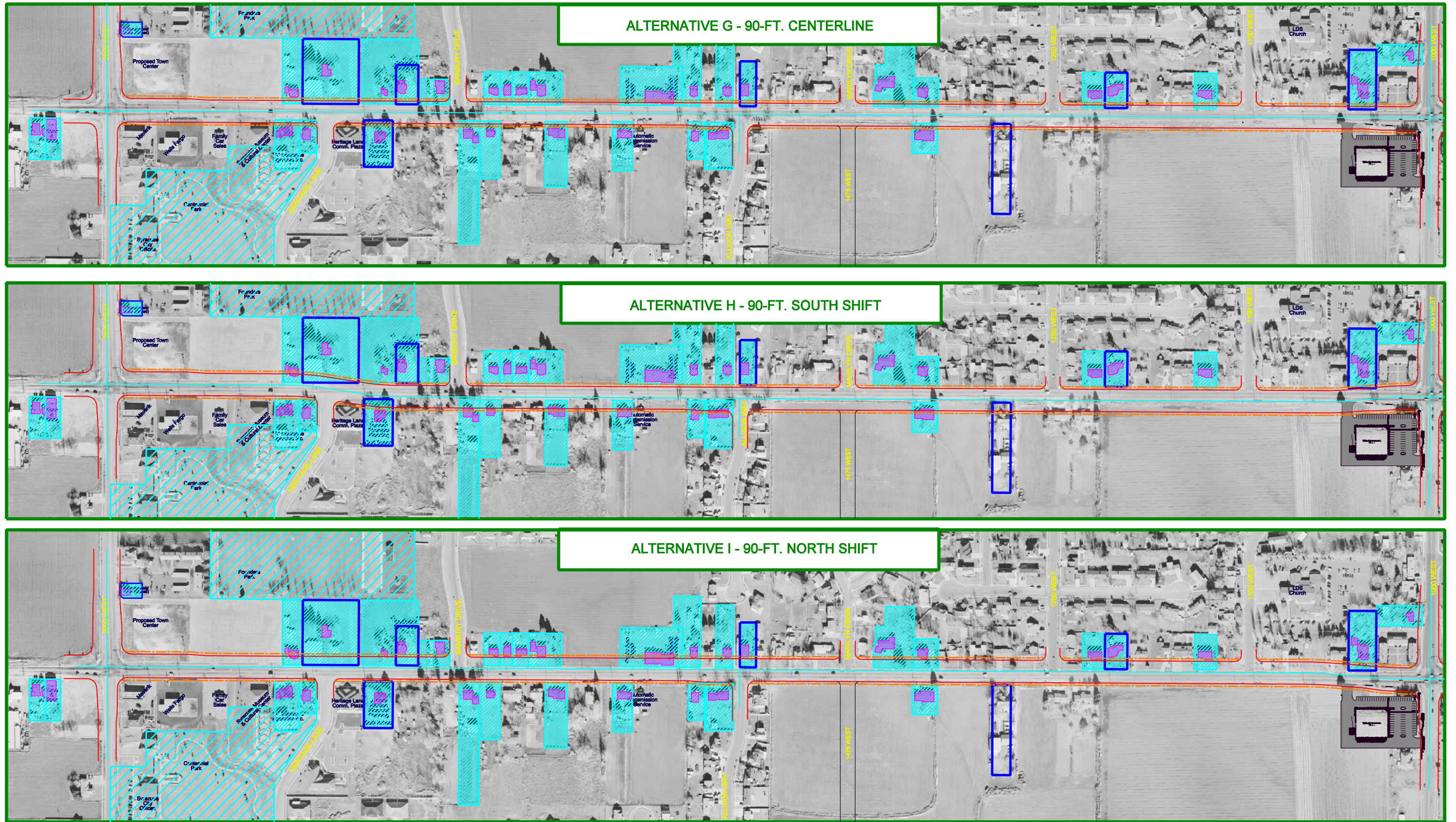
LEGEND:

- | | |
|---|--------------------------------------|
|  | RIGHT-OF-WAY LINE |
|  | LANDSCAPE / UTILITY AREA OR EASEMENT |
|  | SECTION 4(f) PROPERTY BOUNDARY |
|  | SECTION 4(f) HISTORIC STRUCTURE |
|  | LOCALLY IMPORTANT HISTORIC STRUCTURE |

— TOWN CENTER MASTER PLAN
IS SHOWN FOR REFERENCE ONLY



**FIGURE 2-4
FIVE-LANE
BUILD ALTERNATIVES D, E, F**



LEGEND:

- RIGHT-OF-WAY LINE
- - - LANDSCAPE / UTILITY AREA OR EASEMENT
- SECTION 4(f) PROPERTY BOUNDARY
- SECTION 4(f) HISTORIC STRUCTURE
- LOCALLY IMPORTANT HISTORIC STRUCTURE

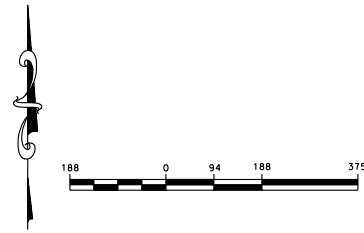


FIGURE 2-5
90 - FT. CROSS-SECTION
BUILD ALTERNATIVES G, H, I

- Implementing Context Sensitive Solutions (CSS), including: addition of a 10-ft wide landscape/utility area to maximize the space between the roadway and residences/businesses remaining on the corridor, addition of 6-ft wide sidewalks along the corridor, piping open irrigation ditches, and addition of lighting (certain types of lighting including decorative lighting may require cost participation by Syracuse City).

Alternatives G through I provide improvements to Syracuse Road between 1000 West and 2000 West, including:

- Widening of the corridor to a 90-ft, five-lane cross-section (four 12-ft travel lanes with a 14-ft two-way left-turn lane) with 5-ft shoulders that include the 5-ft bicycle lane, curb and gutter, and 6-ft sidewalks between 1000 West and 2000 West, a distance of one mile.
- Allowing bicycle usage along the entire corridor by providing 5-ft wide Class II bicycle lanes (provides a striped and signed lane on each side of a roadway for one-way bicycle travel).
- Widening and improving all signalized intersections along the corridor to provide dedicated right and/or left-turn lanes and upgraded traffic signals (TSM strategies). Raised medians would also be implemented at the signalized intersections to protect left-turn movements
- Providing bus-pullout areas that can be used for bus loading and unloading.
- Making storm drain system improvements along the corridor.
- Implementing CSS, including: addition of a 10-ft wide landscape/utility area to maximize the space between the roadway and residences/businesses remaining on the corridor, addition of 6-ft wide sidewalks along the corridor, piping open irrigation ditches, and addition of lighting (certain types of lighting including decorative lighting may require cost participation by Syracuse City).

Table 2-4 lists cross-section elements for the 90-ft and 110-ft cross-sections along with the applicable design standards.

Table 2-4. Comparison of Individual Cross-Section Elements of 90-ft and 110-ft Cross-Sections and Desirable and Minimum Design Standards.

Cross-Section Element	90-ft Cross -Section (feet)		110-ft Cross-Section (feet)		Minimum Standard (feet)	Desirable Standard (feet)
Two-way left-turn lane	14		14		10 ^U	14 ^U
Travel Lane	12		12		9 ^A	12 ^A
Shoulder	0	5	7	12	8 ^U	10-12 ^U
Bike Lane	5		5		(can include bike lane) 5 ^A	(can include bike lane) 5 ^A
Parkstrip	0	3.5		0 (w/ 6' sidewalk) ^U 4 (w/ 4' sidewalk) ^U		4 ^U
Sidewalk	6	6		6 (w/ no parkstrip) ^U 4 (w/ 4' parkstrip) ^U		8 (w/ no parkstrip) ^U 6 (w/ 4' parkstrip) ^U
Curb/Gutter	2.5	2.5		2.5		2.5
Available Clear Zone (edge of outside travel lane to right-of-way)	14	24		20 ^A		20-22 ^A

Source: A = American Association of State Highway and Transportation Officials Standards, U = Utah Department of Transportation Standards

Purpose and Need Evaluation

As part of the second screening, alternatives were evaluated for their ability to meet the project's purpose and need. Table 2-5 summarizes the results of the purpose and need analysis.

Table 2-5. Purpose and Need Preliminary Screening.

Purpose and Need Categories	Description of Individual Purpose and Need Elements (as defined in Chapter 1)	Ability to Meet Purpose and Need (YES/NO) for Each Alternative								
		110-ft Cross-Sections						90-ft Cross-Sections		
		A	B	C	D	E	F	G	H	I
Need	Provides for Transportation System Linkage	YES	YES	YES	YES	YES	YES	YES	YES	YES
	Accommodates Regional Growth	YES	YES	YES	YES	YES	YES	YES	YES	YES
	Meets 2030 Capacity and Travel Demand	YES	YES	YES	YES	YES	YES	NO	NO	NO
	Safety	YES	YES	YES	YES	YES	YES	YES	YES	YES
Purpose	Accommodates regional east-west travel demand for NW Davis County	YES	YES	YES	YES	YES	YES	NO	NO	NO
	Consistency with current standards	YES	YES	YES	YES	YES	YES	NO	NO	NO
	Consistency with state & regional plans	YES	YES	YES	YES	YES	YES	NO	NO	NO
	Consistency with local plans	Syracuse's Transportation Plan						NO	NO	NO
		Syracuse's General Plan						NO	NO	NO
		Syracuse's Town Center Master Plan						NO	NO	NO
	Enhances opportunities to Incorporate multi-modal facilities within the corridor	YES	YES	YES	YES	YES	YES	YES	YES	YES

Accommodate Regional East-West Travel Demand for NW Davis County

Table 2-6 shows the traffic capacities of the 110-ft and 90-ft cross-sections. From the standpoint of meeting travel demand, the 90-ft cross-sections would not meet the 30,000 vpd travel demand, because of decreased capacity due to narrower shoulders.

Table 2-6. LOS D Traffic Capacity Compared with 2030 Travel Demand for 90-ft and 110-ft Cross-Sections.

Alternative	Syracuse Road LOS D Traffic Capacity (vpd)	Syracuse Road Year 2030 Travel Demand (vpd)
110-ft Cross-Section	30,500	30,000
90-ft Cross-Section	28,975	30,000

Note: 2030 Demand varies throughout corridor and is up to 30,000 vpd near 1000 West and 2000 West intersections

Consistency with Current Standards

The 90-ft cross-section was evaluated to see if it would provide a transportation facility consistent with current standards, including those adopted by UDOT and the American Association of State Highway and Transportation Officials (AASHTO), and improve safety features of the facility to address current and future safety concerns. Table 2-4 compares the widths of individual cross-section elements of the 110-ft and 90-ft cross-sections with minimum and desirable standards.

The 90-ft cross-sections (G-I) would not provide adequate clear zone (requiring a design exception from FHWA) and would not meet desirable standards for some roadway elements. The 5-ft bike lane and shoulder would provide fewer safety benefits than a 12-ft bike lane and shoulder, would not allow for parking/disabled vehicles, and would create more difficulty for vehicles to enter/exit driveways (no room for speed change).

Consistency with State and Regional Plans

The 90-ft roadway cross-sections (G-I) differ from those of state and regional plans. WFRC has identified a need for four travel lanes within a 106-ft right-of-way. UDOT has provided for the roadway to be improved within a 110-ft right-of-way in its Statewide Transportation Improvement Plan (STIP) request to WFRC. Syracuse Road has already been constructed within a 106 to 110-ft right-of-way from I-15 to 1000 West, consistent with state and regional plans.

Consistency with Local Plans

Syracuse City Master Transportation Plan and General Plan

As part of the Syracuse City Master Transportation Plan, a roadway functional classification plan was developed and evaluated to help provide sufficient roadway transportation corridors that allow and encourage connectivity with the remainder of the region, but limit the impact of major road corridors on the overall quality of life. Syracuse Road was identified in this plan as an arterial with a right-of-way width of 106-ft (14-ft two-way left-turn lane, 12-ft travel lanes, 9.5-ft shoulders, 2.5-ft curb & gutter, 6-ft parkstrips, and 4-ft sidewalks). The Syracuse City General Plan incorporates the recommendations of the Master Transportation Plan. The 90-ft roadway cross-sections (G-I) are not consistent with the Syracuse City Master Transportation Plan or the Syracuse City General Plan.

Alternatives E and F are not consistent with the Syracuse City General Plan. The local plans for the area are based upon an improvement of Syracuse Road consistent with its existing alignment and include the commercial development of the area adjacent to the existing Syracuse Road. Alternatives E and F do not follow the existing alignment of Syracuse Road and, therefore, are not consistent with the Syracuse City General Plan, and affect planned land use to the north and south of the corridor.

Town Center Master Plan

A Town Center Master Plan was developed to aid Syracuse City as it changes from a rural community to a major suburban community. The Town Center Master Plan compliments the General Plan. A town center is to be developed around the 2000 West intersection on Syracuse Road (western portion of this project). Alternative F does not follow the Town Center Master Plan because it changes the layout of the intersection at 2000 West.

The guiding philosophy of the Town Center Master Plan includes: recognizable Syracuse City town center core; pedestrian access to the town center; and quality improvements and streetscape with a consistent architectural theme, color, and texture through development and design standards. The Town Center Master Plan seeks to “create...an impression” that is unique and recognizable and is designed to portray a welcome to Syracuse City and a Gateway to Antelope Island. Trees, historic lighting, and other street amenities along the corridor to greet visitors are

anticipated. Syracuse City has indicated that the 90-ft cross-sections are not compatible with its desire for a pedestrian friendly, visually enhanced environment at the entrance of the city which would include amenities such as benches, landscape, and public areas. An adequate area beyond the curb line is required to allow for the streetscape, landscape, and architectural treatments to develop the desired effect.

Enhance Opportunities to Incorporate Multi-modal Facilities within the Corridor

The 90-ft roadway cross-sections would provide enhancement opportunities for multi-modal facilities. The 90-ft cross-sections would provide 5-ft wide bicycle lanes. The 90-ft cross-sections would not provide continuous shoulders wide enough for buses to pull out of the travel lane at desired locations to allow complete flexibility for bus stop locations (as preferred by UTA), but bus stop locations could be determined and permanent pullout areas could be constructed as part of the project.

Summary of Purpose and Need Evaluation

The evaluation of each alternative's ability to meet purpose and need resulted in the determination that Alternatives A, B, C, and D would meet all elements of the purpose and need. Alternatives G, H, and I do not provide sufficient capacity to meet 2030 travel demand for east-west travel in northwest Davis County. Alternatives E, F, G, H, and I are not consistent with Syracuse's General Plan, and Alternatives F, G, H, and I are not consistent with the Syracuse Town Center Master Plan. Table 2-5 summarizes the results of the purpose and need analysis.

Syracuse City Resolution R04-05

Supplementing this analysis, Syracuse City approved Resolution R04-05 on May 25, 2004, (included in Chapter 8 of this document), which states that Alternatives E and F would create a hardship to the city. The Resolution indicates that Alternatives E and F would dissect over 50 acres of commercial property, reducing or eliminating the ability for development. This commercial property is located south of Syracuse Road between 1050 West and Allison Way. The land south of this commercial property has been platted as a residential development (Antelope Run Subdivision) and is currently under construction, which eliminates any possibility of shifting the commercial development to the south. Dividing the designated commercial property would change the depth of commercial property from approximately 550 feet to less than 250 feet on either side of the roadway. This would change completely the type of commercial development that could use the property.

The mayor and city council unanimously support a straight alignment for Syracuse Road (Alternatives A, B, C, or D) for the following reasons:

- Conforms to the City's General Plan.
- Does not dissect commercial acres.
- Still protects properties having most historic importance.
- City has been working with commercial developers regarding undeveloped property on the south side of Syracuse Road which would be impacted by Alternatives E and F.
- Traffic impacts are better addressed with a straight roadway alignment.
- Existing homes would not be left with double fronting lots (having roadways directly in front of and behind the property).

- The historic alignment of Syracuse Road is straight and has been planned for in the City's planning process.

Preliminary Evaluation of Environmental Impacts

A preliminary evaluation was performed for Alternatives A through I for the following environmental factors: Economic, Social, Potential Relocations, Pedestrians/Bicyclists, Air Quality, Noise, Water Quality, Cultural Resources, Section 4(f) Properties, Hazardous Waste, and Visual. Of these factors, those most applicable to Syracuse Road are shown in Table 2-7.

Table 2-7. Partial Summary of Impacts for Preliminary Five-Lane Alternatives.

Alternatives	Economic Impacts ¹	Social Impacts ¹	Total # of Potential Relocations ²	Section 4(f) Use (Adverse Effect)	Section 4(f) Use (No Adverse Effect)	Noise (number of impacted receivers before mitigation)
Alternative A – (110-ft cross-section) Widen Equally About the Centerline	P	P	38	17	16	36
Alternative B – (110-ft cross-section) Widen to the South (No. 1)	P	P	26	13	3	48
Alternative C – (110-ft cross-section) Widen to the South (No. 2)	P	P	25	10	5 ³	52
Alternative D – (110-ft cross-section) Widen to the North	P	P	44	19	2	46
Alternative E – (110-ft cross-section) Section 4(f) Minimization Alternative 1 - Curved Alignment to the South	N	N	17	4	5	29
Alternative F – (110-ft cross-section) Section 4(f) Minimization Alternative 2 - Curved Alignment to South and North	N	N	13	3 (Includes an impact to Founders Park)	7	36
Alternative G – (90-ft cross-section) Widen Equally About the Centerline	P	P	8	6	27	57
Alternative H – (90-ft cross-section) Widen to the South	P	P	20	10	4	42
Alternative I – (90-ft cross-section) Widen to the North	P	P	36	17	4	31

¹ P indicates relatively positive impacts; N indicates relatively negative impacts

² Potential relocations are those that have the proposed R/W within 15 feet of the living area of the building area (excluding porch area and garages). Final determinations about relocations will be determined during right-of-way acquisition (see April 15, 2005 UDOT memo in Chapter 8).

³ The number of "No Adverse Effect" determinations for Alternative C was reduced from five to four through Section 4(f) impact minimization efforts which included narrowing the 10-ft landscape/utility area from a 10-ft strip to a strip varying between 6-ft and 10-ft.

There was little difference between alternatives in Pedestrians/bicyclists, Air Quality, Water Quality, Hazardous Waste, and Visual factors. Economic and Social impacts were evaluated in additional studies and were determined to differ between alternatives that keep the original Syracuse Road alignment (Alternatives A-D and G-I) and alternatives that move the roadway off of the original alignment (Alternatives E and F), with Alternatives E and F having higher anticipated economic and social impacts (see September 21, 2005 Alternative E Prudence Memo in Chapter 8).

Preliminary Evaluation of Potential Impacts to Section 4(f) Properties

Included in the preliminary evaluation of environmental impacts are the potential impacts to Section 4(f) properties. Federal regulations require special effort to preserve public parks and recreation lands, wildlife refuges, and historic sites. Impacts to Section 4(f) properties are allowed only if there is no prudent and feasible alternative to using that land, and the project includes all possible planning to minimize harm to the Section 4(f) property resulting from the project.

Historic properties eligible under Section 106 of the National Historic Preservation Act of 1966 qualify for Section 4(f) protection if there is a use of such properties as defined in 23 CFR 771.135. “Adverse Effect” and “No Adverse Effect” determinations (terms defined in the Section 106 regulations found in 36 CFR 800) are used in this document to help the decision makers identify the degree of impacts to Section 4(f) properties (for example, in Table 2-7). Section 4(f) properties within the project area include 33 historic structures and three park/recreation properties (Centennial Park, Founders Park, and Stoker Park).

In order to avoid and minimize impacts to Section 4(f) properties, a preliminary analysis of potential impacts to Section 4(f) properties was performed as part of the development and screening of alternatives (summarized in Table 2-7). A complete Section 4(f) Evaluation is included in Chapter 5 of this document.

As shown in Table 2-7, Alternative E would have the fewest impacts to Section 4(f) properties (four properties with “adverse effect” Section 106 determinations and five properties with “no adverse effect” Section 106 determinations).

Summary of Preliminary Environmental Impacts, Including Impacts to Section 4(f) Properties

Alternative A would have the second highest number of potential relocations. Alternatives A and G would have the most Section 4(f) impacts. Alternative B would have one more potential relocation and three more “adverse effect” Section 106 determinations than Alternative C (Alternative B and C have very similar south shift alignments, differing only by the location of the south to north transition – see Figure 2-3). Alternative D has the most potential relocations. Alternatives E and F have the fewest impacts to historic Section 4(f) properties. Alternative G has the fewest potential relocations. Alternative H has five fewer potential relocations and one less Section 4(f) impact than Alternative C (the 110-ft cross-section alternative with the same alignment). Alternative I has eight fewer potential relocations than Alternative D (the 110-ft cross-section alternative with the same alignment).

Second Screening Recommendations

The second screening process evaluated compatibility of the alternatives with purpose and need and evaluated preliminary environmental impacts, including impacts to Section 4(f) properties.

From the second screening, the following alternatives were recommended for elimination from further study: Alternative A, Alternative B, Alternative E, Alternative F, Alternative G, Alternative H, and Alternative I. A brief discussion regarding the reasons for each alternative's elimination from further study is discussed in the following paragraphs.

Alternative A

Although Alternative A would meet all of the purpose and need elements as shown in Table 2-5, it was removed from further study due to the high number of environmental impacts. Alternative A would require 38 residential/commercial potential relocations, the second highest number of potential relocations for Alternatives A through I. Alternative A would leave the roadway right-of-way very close to 26 remaining residences/businesses. As determined in the Community Social Assessment (see Chapter 3), those commenting on potential negative project effects most frequently identified adverse impacts associated with the removal of some homes, loss of yard space, impacts associated with the proximity of the roadway right-of-way to homes not being removed, and reduction in the value of corridor-adjacent residential properties. Alternative A would impact the highest number of historic Section 4(f) resources (requiring the removal of 17 structures and taking right-of-way from another 16 properties).

Alternative B

Although Alternative B would meet all of the purpose and need elements as shown in Table 2-5, it was removed from further study as part of the preliminary evaluation of environmental impacts. Alternative B is very similar to Alternative C. Both would widen Syracuse Road to the South, differing only in the location of transition from south to north toward the west end of the corridor. Alternative B would require one additional potential relocation and would have three more “adverse effect” Section 106 determinations than Alternative C.

Alternative E

Alternative E was removed from further study because it would not meet the “consistent with local plans” element of the Purpose and Need (for complete discussion, see September 21, 2005 Alternative E Prudence Memo in Chapter 8). The Syracuse General Plan provides for major commercial development adjacent to an improved Syracuse Road. Alternative E would interfere with the major commercial development by dividing up the available undeveloped land south of the existing alignment. This land, which has been reserved by Syracuse City for major commercial development, would be limited in the nature and size of potential development. There are no other similar properties within Syracuse suitable for commercial development, including traffic access and exposure. This is a prime commercial area of the utmost importance to the future of Syracuse City.

Syracuse City's Mayor and City Council expressed opposition to this alternative in Resolution R-04-05. City staff has also repeatedly expressed opposition to any alignment other than existing Syracuse Road. In addition, residents and property owners have expressed opposition at public meetings in which Alternative E was under consideration, with approximately 72 percent

opposed to an off-corridor alignment and only 16 percent expressing any support. Alternative E would be unpopular and potentially damaging to property values, as well as to current and future development plans for the area.

This inconsistency with the Syracuse General Plan would have a serious impact on Syracuse City's ability to meet the needs of the city. Based on sales tax receipts, Syracuse residents currently make approximately 81 percent of their purchases outside Syracuse City. Syracuse City's goal for the major commercial development is capture more of this sales tax revenue to provide needed city services. The prime commercial properties split by Alternative E near 1000 West would not have sufficient depth to attract major big box retailers. This area would likely still develop commercially, but would not provide the same level of sales tax revenue. A reduction of \$450,000 in city sales tax per year would be anticipated, which represents roughly 35 percent of the sales tax revenue currently collected by the city, and nearly 13 percent of the projected 2006 city budget.

Alternative F

Alternative F was removed from further study because it would not meet the "consistent with local plans" element of the Purpose and Need. Alternative F would have similar impacts as Alternative E. In addition, Alternative F is the only alternative that would impact Founders Park (1500 South 1900 West). Alternative F would take over one acre of property from the park, including 0.17 acres of the parking lot (19 parking stalls), all of the 0.12 acre playground area, 0.35 acres of additional grassy area surrounding the playground, and 0.56 acres of the playing field. Section 4(f) impacts to Founders Park would not be prudent since other feasible and prudent alternatives exist that do not impact the park.

Alternatives G, H, and I

Alternatives G, H, and I were removed from further study because they would not meet elements of the purpose and need for the project (would not meet 2030 travel demand, are not consistent with current standards, including shoulder width and clear zone, are not consistent with state and regional plans, are not consistent with the Syracuse City's plans) and they are not supported by local officials.

Alternatives G, H, and I would only accommodate 28,975 vpd and would not meet the 2030 travel demand of 30,000 vpd. Alternatives G, H, and I include 5-ft wide shoulders/bike lanes. The 5-ft bike lane is within applicable standards; however, the total shoulder width of 5-ft is narrower than the 8-ft UDOT minimum standard for this type of roadway facility. Additionally, Alternatives G, H, and I would provide a clear zone of only 14 feet, which is less than AASHTO's recommended 20 feet and would require a design exception from FHWA.

The 90-ft typical section of Alternatives G, H, and I is not consistent with state and regional plans. WFRC identified a 106-ft right-of-way, and UDOT has planned for the roadway to be improved within a 110-ft right-of-way. Alternatives G, H, and I are also not consistent with local plans including Syracuse City's Master Transportation Plan and General Plan, which identify a right-of-way width of 106-ft. Also, Syracuse Road to the east has already been constructed within a 106 to 110-ft right-of-way from I-15 to 1000 West, consistent with local, state and regional plans.

Syracuse City has indicated that Alternatives G, H, and I are not compatible with its Town Center Master Plan and would not result in a pedestrian-friendly, visually enhanced environment at the entrance of the city.

2.3 ALTERNATIVES SELECTED FOR DETAILED STUDY

Reasonable alternatives must meet selection criteria, be technically feasible, and be economically possible. Alternatives selected for detailed study include the No-action Alternative and two 110-ft Five-Lane Build Alternatives (Alternative C – Widen to the South (No. 2) and Alternative D – Widen to the North).

2.3.1 No-action Alternative

The No-action Alternative includes short-term minor restoration (safety and maintenance) activities that maintain continued operation of the existing roadway facility. The basic characteristic of the No-action Alternative is one travel lane in each direction on Syracuse Road. These improvements may involve minor widening for shoulders; installing curb, gutter, and sidewalk; and pavement rehabilitation. The No-action Alternative also considers improvements by others to other roadways within the general project area, per the WFRC LRTP, to enhance mobility in the area. All of these activities would likely have some environmental impacts. Detailed effects of these activities, to be performed by others, would be evaluated as part of the NEPA process for those particular projects. General effects associated with the No-action Alternative for Syracuse Road are discussed in Chapter 4.

The No-action Alternative does not provide for widening of Syracuse Road and therefore does not include improvements such as the addition of shoulders wide enough for bicycle and bus usage and does not include substantial intersection improvements. The No-action Alternative fails to meet the purpose and need of the project but satisfies the National Environmental Policy Act (NEPA) “No-action” requirement in that it can be used as a baseline to compare impacts of build alternatives.

2.3.2 Five-Lane Build Alternatives

The Five-Lane Build Alternatives include improvements along Syracuse Road between 1000 West and 2000 West. Activities that would occur under the Five-Lane Build Alternatives include:

- Widening of the corridor to a five-lane cross-section (four 12-ft travel lanes with a 14-ft two-way left-turn lane) with shoulders (12-ft, which include a 5-ft bicycle lane), curb and gutter, parkstrips, and sidewalks (see Figure 2-6 for the Alternative C typical roadway section and Figure 2-7 for the Alternative D typical roadway section). Additional widening beyond the 110-ft right-of-way would be required at 2000 West (116.5-ft of right-of-way required) in order to provide for exclusive right and left-turn lanes. Right turn lanes would be provided for all local streets and constructed within the 110-ft right-of-way (parkstrips will be eliminated at these locations to minimize right-of-way acquisition. Ten-foot wide landscape/utility areas or easements are anticipated for most areas along the corridor to provide space between the roadway and residences/businesses remaining on the corridor, to facilitate construction activities, and for the placement of overhead utilities.
- Allowing bicycle usage along the entire corridor by providing Class II bicycle lanes (a striped and signed lane on each side of the roadway for one-way bicycle travel).
- Widening and improving the 1000 West and 2000 West signalized intersections to provide dedicated right and/or left-turn lanes and upgraded traffic signals (TSM strategies). Raised medians would also be implemented at the signalized intersections to protect left-turn movements
- Accommodating bus service along the corridor by providing 12-ft shoulders that can be used for bus loading and unloading.
- Providing storm drain system improvements along the corridor.
- Implementing CSS, including: addition of a 10-ft wide landscape/utility area to maximize the space between the roadway and residences/businesses remaining on the corridor, addition of 6-ft wide sidewalks along the corridor, piping open irrigation ditches, and addition of lighting (certain types of lighting including decorative lighting may require cost participation by Syracuse City).

ALTERNATIVE C SYRACUSE ROAD 110-FT TYPICAL SECTION

DESIGN SPEED 45 mph

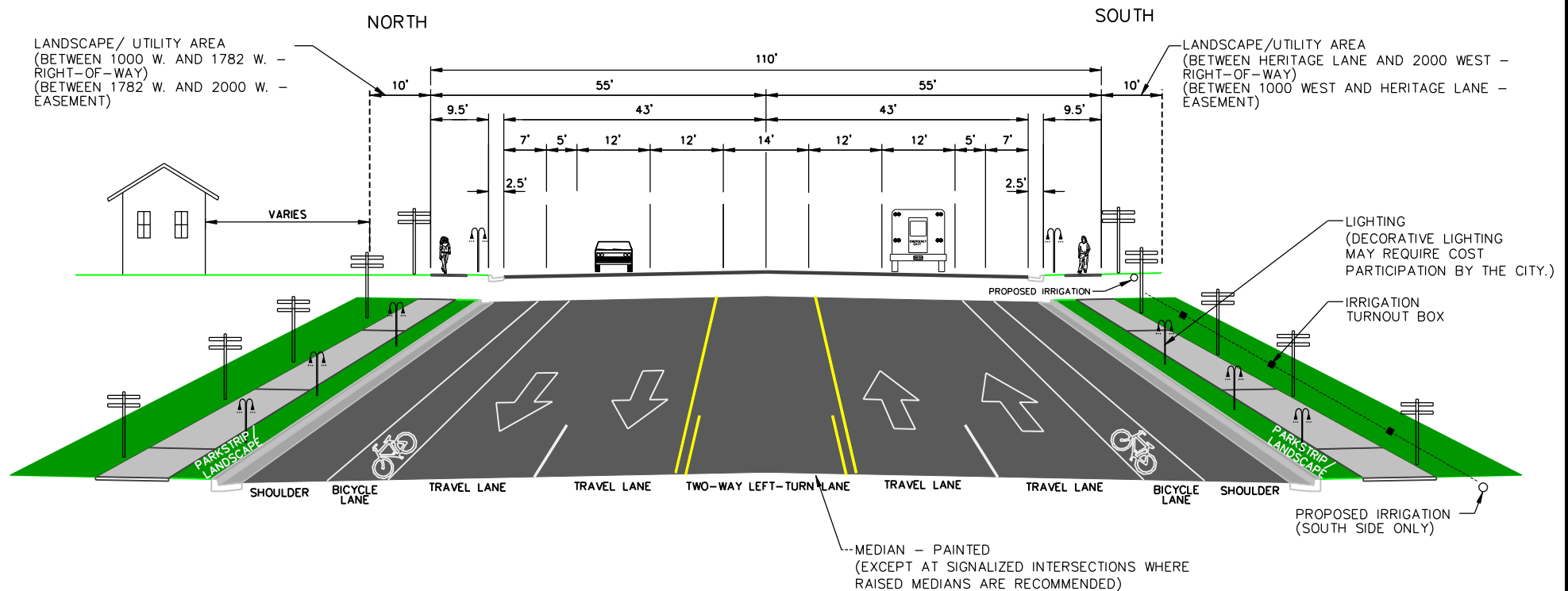


FIGURE 2-6

ALTERNATIVE C TYPICAL SECTION

ALTERNATIVE D SYRACUSE ROAD 110-FT TYPICAL SECTION

DESIGN SPEED 45 mph

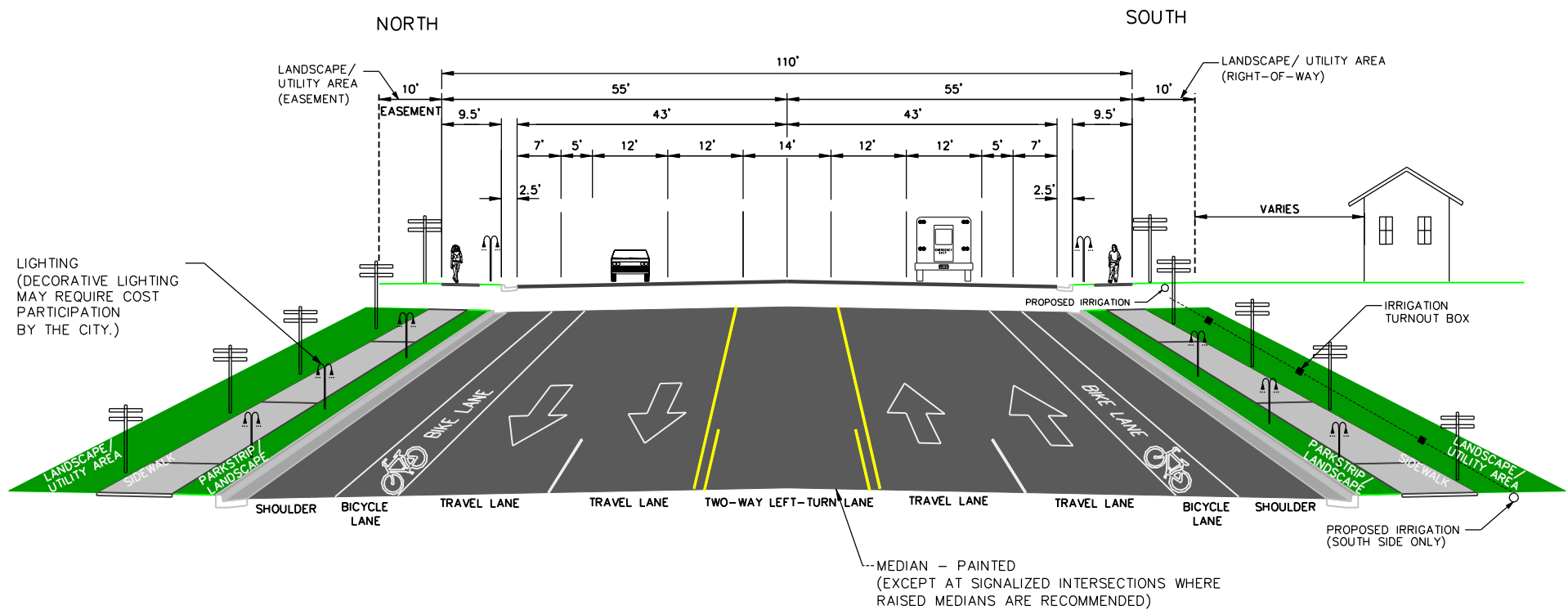
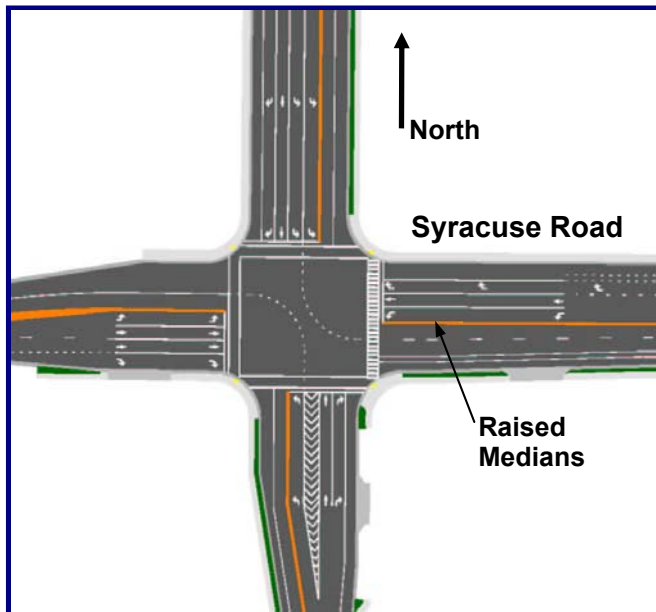


FIGURE 2-7
ALTERNATIVE D TYPICAL SECTION

Alternative C – Widen to the South No. 2 (see Figures 2-12 and 2-13)

At the 2000 West Intersection, the north quadrant of the intersection would have one travel lane going north, one travel lane to the south, dual left-turn lanes, and a dedicated right-turn lane. The north quadrant would begin tapering down to the existing roadway at about 250 feet north of



Syracuse Road. The south quadrant would have one travel lane in each direction, a single left-turn lane, and a dedicated right-turn lane. The east quadrant would include one travel lane to the west, two travel lanes to the east, a single left-turn lane, and a dedicated right-turn lane. The west quadrant would include one travel lane to the west, two travel lanes to the east (tapering down to one lane), a single left-turn lane, and a dedicated right-turn lane. All dedicated left-turn lanes at this intersection would be protected by raised medians. This configuration would accommodate the current and projected travel demand as shown in the traffic study performed for the project (see Appendix A).

Figure 2-8. Alternative C 2000 West Intersection

Between 2000 West and 1000 West, Alternative C widens Syracuse Road to a five-lane cross-section with shoulders, curb, gutter, parkstrip, and sidewalk within a 110-ft right-of-way. The alignment begins to offset 32 feet to the north at 2000 West and transitions to full widening to the south by Banbury Drive. Between Banbury Drive and about 300 to 400 feet west of 1000 West, the alignment stays shifted to the south, and then transitions to match the existing 1000 West intersection.

At 1000 West, the east quadrant of the intersection would remain the same, and improvements would be made to the north, south, and west quadrants. The north quadrant would have one travel lane in each direction, a single left-turn lane, and a dedicated right-turn lane. The south quadrant would have one travel lane in each direction, a single left-turn lane, and a dedicated right-turn lane. The west quadrant would include two travel lanes in each direction, a single left-turn lane, and a dedicated right-turn lane. The dedicated left-turn lanes along Syracuse Road would be protected by a raised median at this intersection.

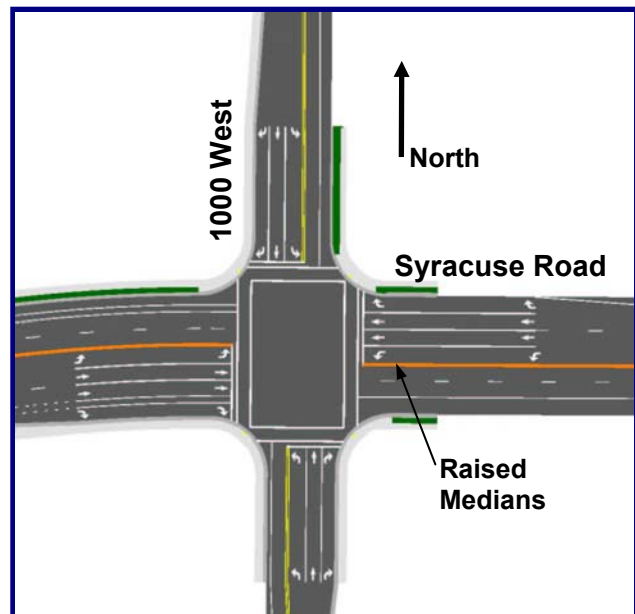
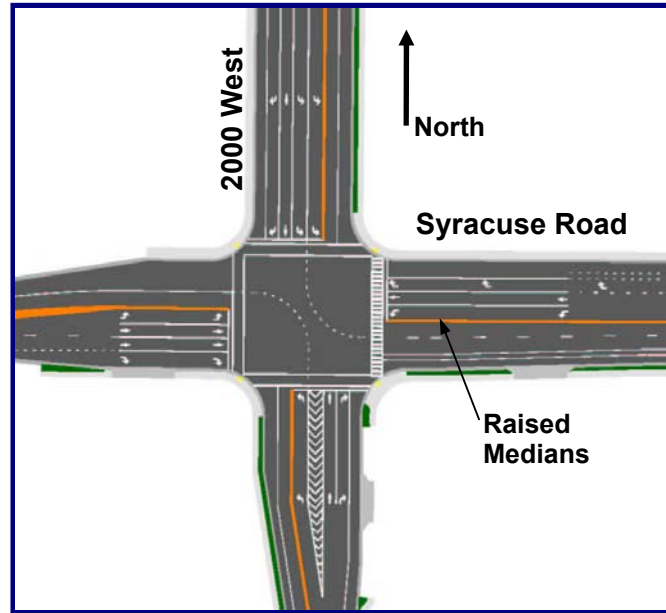


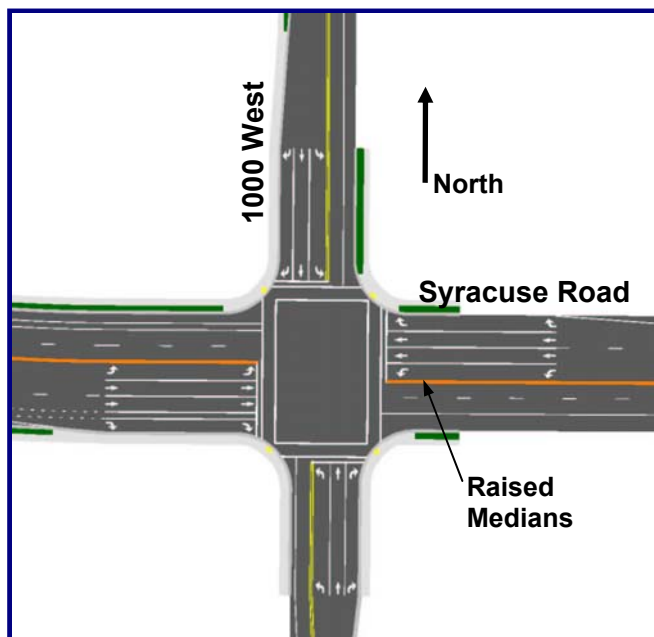
Figure 2-9. Alternative C 1000 West Intersection

Alternative D – Widen to the North (see Figure 2-14 and 2-15)

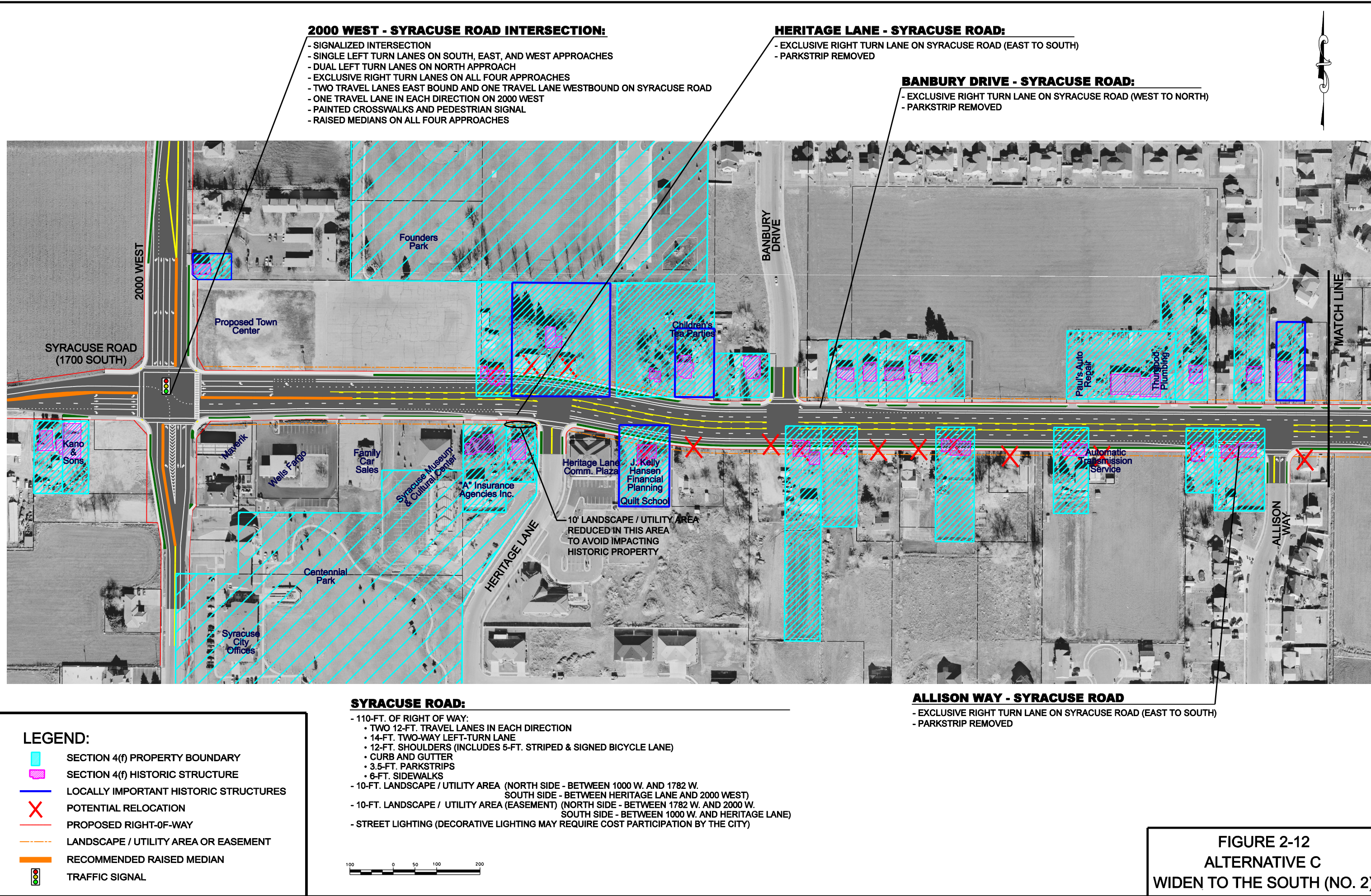
At the 2000 West Intersection, the north quadrant of the intersection would have one travel lane going north, one travel lane to the south, dual left-turn lanes, and a dedicated right-turn lane. The north quadrant would begin tapering down to the existing roadway at about 250 feet north of Syracuse Road. The south quadrant would have one travel lane in each direction, a single left-turn lane, and a dedicated right-turn lane. The east quadrant would include one travel lane to the west, two travel lanes to the east, a single left-turn lane, and a dedicated right-turn lane. The west quadrant would include one travel lane to the west, two travel lanes to the east (tapering down to one lane), a single left-turn lane, and a dedicated right-turn lane. All dedicated left-turn lanes at this intersection would be protected by raised medians. This configuration would accommodate the current and projected travel demand as shown in the traffic study performed for the project (see Appendix A).

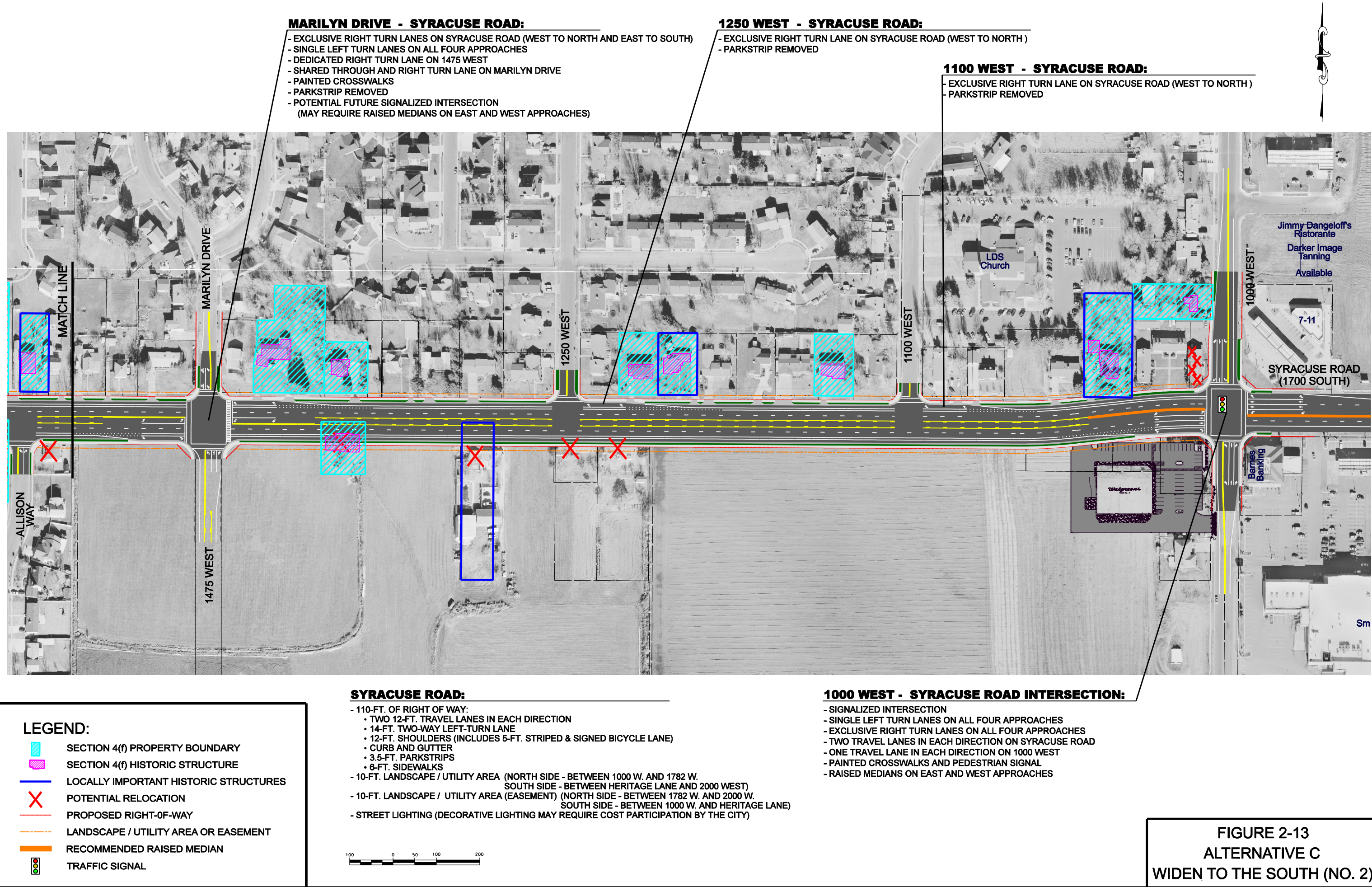
**Figure 2-10. Alternative D 2000 West Intersection**

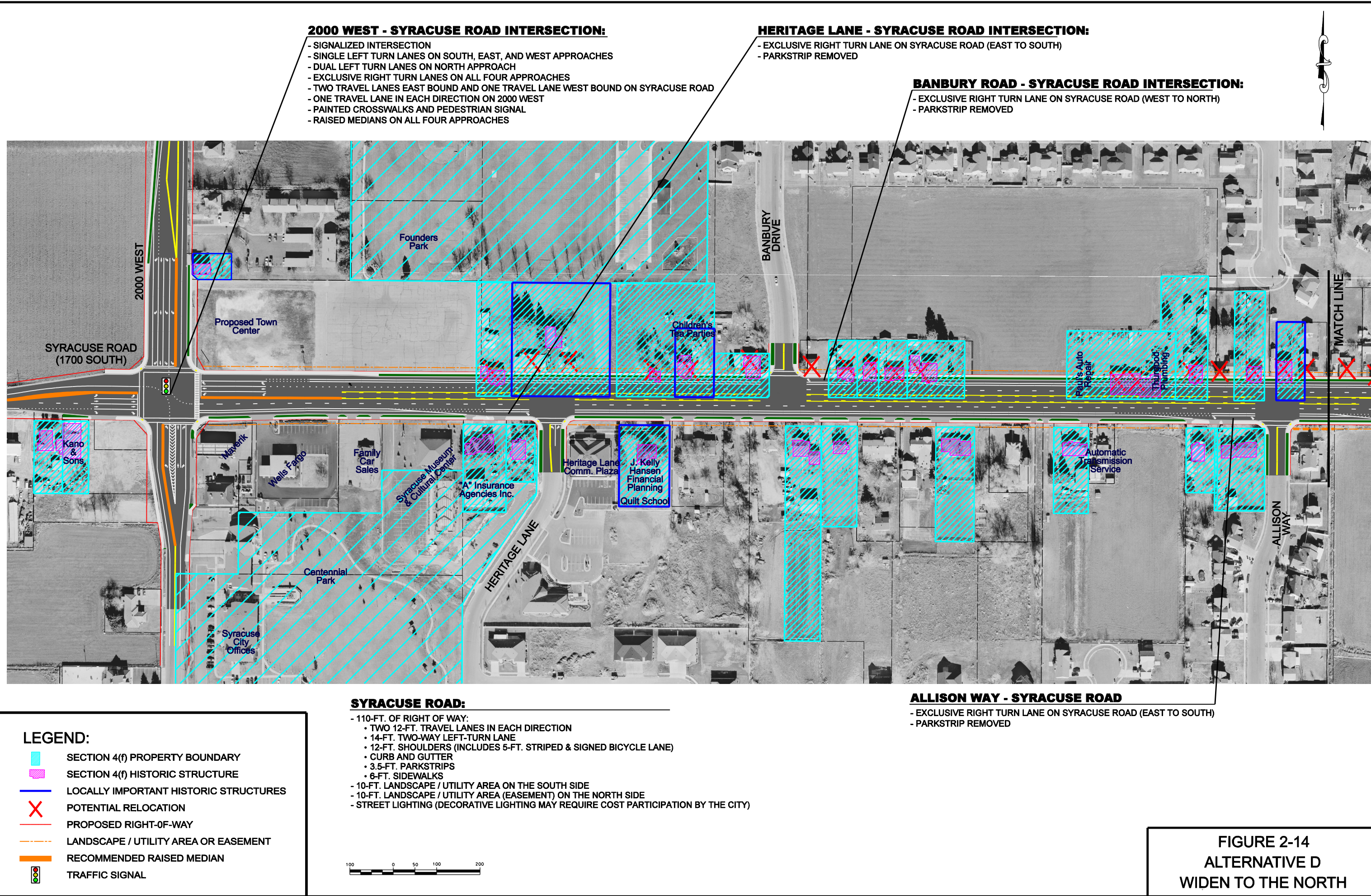
Between 2000 West and 1000 West, Alternative D widens Syracuse Road to the north to create a five-lane cross-section with shoulders, curb, gutter, parkstrip, and sidewalk within a 110-ft right-of-way. At about 300 to 400 feet west of 1000 West, the alignment transitions south to match the existing 1000 West intersection.

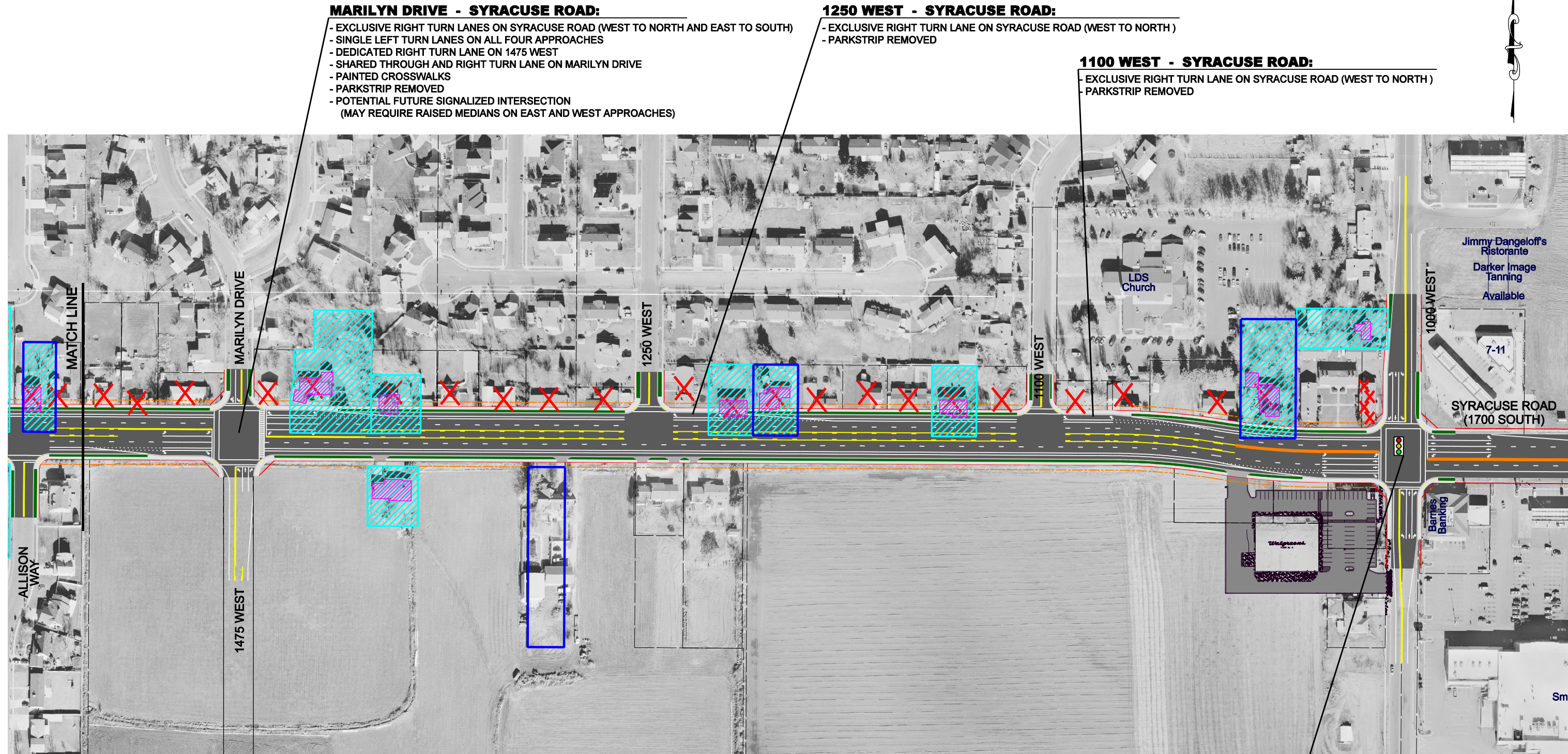
**Figure 2-11. Alternative D 1000 West Intersection**

At 1000 West, the east quadrant of the intersection would remain the same, and improvements would be made to the north, south, and west quadrants. The north quadrant would have one travel lane in each direction, a single left-turn lane, and a dedicated right-turn lane. The south quadrant would have one travel lane in each direction, a single left-turn lane, and a dedicated right-turn lane. The west quadrant would include two travel lanes in each direction, a single left-turn lane, and a dedicated right-turn lane. The dedicated left-turn lanes along Syracuse Road would be protected by a raised median at this intersection.









MARILYN DRIVE - SYRACUSE ROAD:

- EXCLUSIVE RIGHT TURN LANES ON SYRACUSE ROAD (WEST TO NORTH AND EAST TO SOUTH)
- SINGLE LEFT TURN LANES ON ALL FOUR APPROACHES
- DEDICATED RIGHT TURN LANE ON 1475 WEST
- SHARED THROUGH AND RIGHT TURN LANE ON MARILYN DRIVE
- PAINTED CROSSWALKS
- PARKSTRIP REMOVED
- POTENTIAL FUTURE SIGNALIZED INTERSECTION (MAY REQUIRE RAISED MEDIANS ON EAST AND WEST APPROACHES)

1250 WEST - SYRACUSE ROAD:

- EXCLUSIVE RIGHT TURN LANE ON SYRACUSE ROAD (WEST TO NORTH)
- PARKSTRIP REMOVED

1100 WEST - SYRACUSE ROAD:

- EXCLUSIVE RIGHT TURN LANE ON SYRACUSE ROAD (WEST TO NORTH)
- PARKSTRIP REMOVED

SYRACUSE ROAD:

- 110-FT. OF RIGHT OF WAY:
 - TWO 12-FT. TRAVEL LANES IN EACH DIRECTION
 - 14-FT. TWO-WAY LEFT-TURN LANE
 - 12-FT. SHOULDERS (INCLUDES 5-FT. STRIPED & SIGNED BICYCLE LANE)
 - CURB AND GUTTER
 - 3.5-FT. PARKSTRIPS
 - 6-FT. SIDEWALKS
- 10-FT. LANDSCAPE / UTILITY AREA ON THE SOUTH SIDE
- 10-FT. LANDSCAPE / UTILITY AREA (EASEMENT) ON THE NORTH SIDE
- STREET LIGHTING (DECORATIVE LIGHTING MAY REQUIRE COST PARTICIPATION BY THE CITY)

1000 WEST - SYRACUSE ROAD INTERSECTION:

- SIGNALIZED INTERSECTION
- SINGLE LEFT TURN LANES ON ALL FOUR APPROACHES
- EXCLUSIVE RIGHT TURN LANES ON ALL FOUR APPROACHES
- TWO TRAVEL LANES IN EACH DIRECTION ON SYRACUSE ROAD
- ONE TRAVEL LANE IN EACH DIRECTION ON 1000 WEST
- PAINTED CROSSWALKS AND PEDESTRIAN SIGNAL
- RAISED MEDIANS ON EAST AND WEST APPROACHES

LEGEND:

- SECTION 4(f) PROPERTY BOUNDARY
- SECTION 4(f) HISTORIC STRUCTURE
- LOCALLY IMPORTANT HISTORIC STRUCTURES
- POTENTIAL RELOCATION
- PROPOSED RIGHT-OF-WAY
- LANDSCAPE / UTILITY AREA OR EASEMENT
- RECOMMENDED RAISED MEDIAN
- TRAFFIC SIGNAL

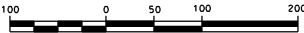


FIGURE 2-15
ALTERNATIVE D
WIDEN TO THE NORTH

2.4 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The Preferred Alternative was not identified in the Draft EIS; however, Alternative C – Widen to the South No. 2 was presented as the least impacting, most beneficial alternative to meet the purpose and need of the project. The Public Hearing presented all alternatives considered, described the alternative selection process, and presented Alternative C as the Technically Preferred Alternative. The majority of comments received as part of the Public Hearing and Draft EIS Comment Period were supportive of Alternative C. No substantive comments were received with new information that would be persuasive to the selection of a different alternative. Thus, Alternative C has been selected as the Preferred Alternative for Syracuse Road.